TEJUS
CONSULTANTS

Name of the work : Improvements to roads Drains anf other Devlopmental Works in Maruthinagara Ward No 01 Under SWM Head in Chief Nava Nagarottana Grant of Yelahanka Division Package - 05

Contractor/Agency : M/S Benaka Developers and Projects Pvt Ltd

Name of the Client : Executive Engineer,
Yelahanka Division
BBMP, Bangalore-92

Estimated Cost : Rs 1000.00 Lakhs

Status of Bill : 2nd and Final bill ✓

In the Presence of : (a) Mr. Mallinath
Assistant Engineer, BBMP, Bangalore.
: (b) Mr. Rajanikanthmalli
Assistant Executive Engineer, BBMP, Bangalore
: (c) Mr.Harish R K, Site Engineer
M/s Tejus Consultants

SL No	Description of Item	Comments/ observation
1	KSRRB M300-14. Excavation for roadwork in all types of soil by mechanical means including cutting and loading to tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transportation with a lead of 1.00 km and complete as per specifications MORTH Specificatio MORTH Specification No.301 (I No-19.14,P No-143)	Work done up to the billed quantity and quality is satisfactory
2	KSRB 2-2.1 : Earthwork excavation for foundation of buildings, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in ordinary soil not exceeding 1.5 m. in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m. after breaking of clods complete as per specifications. specification. No. KBS 2.1(a) / 2.3.5 Page No.3.6	Work done up to the billed quantity and quality is satisfactory
3	KSRRB M300-19. Removal of unserviceable soil including excavation, loading and disposal but excluding replacement by suitable soil which shall be paid separately as per clause 300.5 complete as per specifications. MORTH Specification No. 301 KBS Page No.144 It No.19.2	Work done up to the billed quantity and quality is satisfactory

AE-1 2 ✓

AE

A.E.E

TEJUS CONSULTANTS

4	KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregtes @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills, ncluding cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2 Page No.13 It No.4.7	Work done up to the billed quantity and quality is satisfactory
5	Providing and laying plain/reinforced cement concrete for side drains using M20 nominal mix concrete with OPC at 300 kgs. With 20mm and sown size granite metal course aggregates at 0.69 cum and fine aggregates at 0.43 cum machine mixed, well compcted for walls and bottom including centring shuttering cost of material HOM of machinary curing etc., complete execluding cost of steel as per MORTH specification no. 1500, 1700, 2200 including cost of material labour HOM complete as per specification. (P.No.270, I.No.37.59.1	Work done up to the billed quantity and quality is satisfactory
6	KSRRB - M2300-14: Providing TMT steel reinforcement for R.C.C work including straightening, cutting, bending, hooking, palcing in position, lapping and / or welding wherever required, tying with binding wire and anchoring to the adjoining memebrs wherever necessary complete as per design (laps, hooks and wastage shall not be measured and paid) cost of materials, labour, HOM complete as per specifications.Specification for TMT bars Fe 500(Page No-229. INo.28.8.2 2018-19)	Work done up to the billed quantity and quality is satisfactory
7	Removing and Refixing of stone slabs of drains and poiting in CM(1:3) Page No.27 It No.5.33	Work done up to the billed quantity and quality is satisfactory
8	Providing and fixing precast cover slab made out of CC 1:2:4 with 10cm finishing cutting including form work,cost of all materials,labour hire charges of chinery loading and unloading lead and lift transportation etc, complete (Data rate)	Work done up to the billed quantity and quality is satisfactory
9	Providing and fixing RCC Precast cover slab of 250mm thick for drain in cement concrete M20 using graded granite jelly 20mm and down size with steel reinforcement, including form work, lift charges, curing and concrete finished surfaces on both sides etc, complete and as per drawing and the directions of Engineer in-charge. (Data Rate)	Work done up to the billed quantity and quality is satisfactory
10	Removing and resetting of kerb stones Page No.270 It No.37.57	Work done up to the billed quantity and quality is satisfactory
11	Providing and fixing pre cast solid cement concrete kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165 mm respectively, 400mm high and 450mm in length finished with CM 1:3 plastering and finishing cutting including formwork, curing, including cost of materials, labour charges of machinery, loading and unloading, lead and lift, transportation ete.,complete as per specifications	Work done up to the billed quantity and quality is satisfactory
12	KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8)	Work done up to the billed quantity and quality is satisfactory

A.E.E

TEJUS CONSULTANTS
No. 58, 3rd main, 6th Cross, 1st Stage KHB Colony, Basaveshwaranagar, Bangalore - 560079, O : +91 80 23287532, tejusconsultants@gmail.com

17	KSRRB M500-6.Providing and applying primer coat with S.S bitumen emulsion on prepared surface of granular base such as WMM including of road surface and spraying primer at the rate of 0.60 kg / sqm using mechanical means complete as per specifications. Clause 502 of MORTH V revision .Item No.- 21.6 ,Page No.158	Work done up to the billed quantity and quality is satisfactory
18	KSRRB 500-2. Cleaning the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatment including cost of all materials, labour, HOM of machineries complete as per specifications. MORTH specification clause 501 page No.158 It No.21.2	Work done up to the billed quantity and quality is satisfactory
19	KSRRB 500-17 Provding and laying dense geaded bituminous macadam using crushed aggregates of specified grading, premixed with VG30 grade bituminous binder and, transporting the hot mix to work site, laying to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction in all respects complete as per specifications. Clause 505 of MORTH V revision 21.17.6 -do- using 40/60 TPH capacity H.M.P. with Mechanical paver Gr-II (50 mm to 75mm) with 4.5 % VG-30 Bitumen ,(Item No-21.17.2 , Page No-160)	Work done up to the billed quantity and quality is satisfactory
20	KSRRB M500-6.Providing and applying Tack coat using 80/100 bitumen(VG 10) on prepared black topped surface at 2.5 kg per 10 sqm,heating bituman in boiler fitted with spray set (excluding cleaning of road surface)including cost of materials,labour, HOM complete as per specifications. Clause 503 of MORTH V revision .Item No.-21.7 ,Page No.158	Work done up to the billed quantity and quality is satisfactory
21	Providing and laying bituminous concrete 40mm thick with hot mix plant, using crushed aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site, laing with a paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction in all respects complete as per specifications. Clause 507 of MORTH V revision as per IRC SP-53-2015. ,using 40-60 TPH capacity HMP with mechanical paver II(30-45mm) with 5.4% of modified bituminous binder consisting of 4.97% of VG-30 bituminous (60/70grade) and 0.43% of plastomeric thermoplastics (Waste plastic)Pg No-171.It No.21.78.12	Work done up to the billed quantity and quality is satisfactory
22	Providing and fixing of Retro-Reflectorised cautionary, mandatory and informatory signs as per IRC:67 made of high intensity grade sheeting vide Clause 8001.3, fixed over aluminium sheeting,1.5mm thick supported on a milld steel angle iron post 75x75x6mm firmly fixed to the ground by means of properly disigned foundation with M15 Grade cement concrete 45cm x 45cm x 60cm, 60cm below ground level as per approved drawing Page No.180. It No.24.2.	Item Of Work Not Operated
23	KSRRB M800-5.2. Over head Signs:Supply and installation of Retro-Reflecton overhead gantry signs boards made out of cube corner IRC:67:2012 specification and fixed over 4mm thick aluminium composite panel sheet having minimum 0.3mm thick aluminum skin on both sides excluding the cost of support frame , vertical support and horizontal support and foundation as directed by the engineer incharge of the work Page No.181It No.24.6.	Work done up to the billed quantity and quality is satisfactory

A.E.E

24	KSRRB M800-4. Direction and Place Identification Signs / Project information board with size more than 0.9 sqm Size Board:-MProviding and erecting direction and place identification of retro- reflectorised signs as per IRC:67 made of high intensity grade sheeting vide Clause 8001.3, fixed over aluminium sheeting,1.5mm thick supported on a milld steel angle iron post 75x75x6mm firmly fixed to the ground by means of properly disigned foundation with M15 Grade cement concrete 45cm x 45cm x 60cm, 60cm below ground level as per approved drawing Page No.180. It No.24.4	TEJUS CONSULTANTS Work done up to the billed quantity and quality is satisfactory
25	KSRRB M800-13.Road Marking with Hot Applied Thermoplastic Compound with Reflectrising Glass Beads on Bituminous Surface:- Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803 Page No.182.It No.24.15	Work done up to the billed quantity and quality is satisfactory
26	For rainwater harvesting work including 40mm jelly, 20mm jelly coarse sand,fine sand ,12.50mm chips as per data rates	Work done up to the billed quantity and quality is satisfactory
27	KSRRB M300-Construction of Subgrade and Earthen Shoulders. KSRRB M300-55. Construction of sub-grade and earthen shoulders with approved material Gravel/Murrum with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of Table No. 300-2 complete as per specifications (including cost of earth, watering charges & compaction by vibratory rollercompaction by vibratory roller to 97% of proctors density) MORTH Specification No. 305 page No.147 It No.19.62 SR 2018-19	Item Of Work Not Operated
28	Geophysical investigation of site for sinking Borewell for supplying drinking water to the habitation either through the Hand pump, MWS of P.W.S.S by vertical electrical sounding by adopting Venner or Schlumberger's method, including reconnaissance survey of geological formation, Geophysical investigation of existing Ground Wate in the vicinity, its qualityf 1.0 meter in consolidated formation for proper seating of casing pipe, depth of drilling required to cover full depth of aquifer proposed to be tapped, probable yield and other information required including transportation of instrument and accessories to work site., engaging techinical personal and labour required etc., as per Specification and direction (P.47, I. 9.4) PRED.SR 2012-13	Work done up to the billed quantity and quality is satisfactory
29	Sinking borewell of 165 mm dia clear using super fast hydraulic rig of capacity 250 PSIG & above CFM & above in all strats including over burden upto 20 mts fixing of casing pipes, collars and cap with necessary cutting, throading and welding including transportation of rig and supporing vehicles, crew charges and cost of consumables etc., complete including yield testing at the final depth with a minimum working of compressor for one hour (excluding coat of casing pipes, collars, cap etc.,)Page no. 46 / I. 9.1 PRED SR 2012-13- (0-50m)	Work done up to the billed quantity and quality is satisfactory
29.1	50.00 to 100.00 Mtr	

A.E.E

29.2	100.00 to 150.00 Mtr	Work done up to the billed quantity and quality is satisfactory
29.3	150.00 to 200.00 Mtr	Work done up to the billed quantity and quality is satisfactory
29.4	200.00 to 250.00 Mtr	Work done up to the billed quantity and quality is satisfactory
29.5	250.00 to 300.00 Mtr	Work done up to the billed quantity and quality is satisfactory
29.6	300.00 to 350.00 Mtr	Work done up to the billed quantity and quality is satisfactory
30	Supply of ISI mark 175 mm nominal bore medium black ERW casing pipe of 5 mm thick black electric resistance continuous welded mild steel tube material confirming to IS 1387 / 1993 & manufactured from hot rolled steel skelp / stripes in random length of 4 to 7 mts both ends threaded confirming to IS 554 / 1985, one end fixed with a socket and the other and with a plastic protection end (including of all taxes) SE PRED III NO 84, PRED 12-13 SR)	Work done up to the billed quantity and quality is satisfactory
31	Providing and fixing 250mm dia PVC Pipe and as per specifications and directions(BWSSB SR 16-17 PNO 57 SL NO 11)	Work done up to the billed quantity and quality is satisfactory
32	175mm dia M.S Casing Cap (P.No.iii. It No-85,PRED 12-13 SR)	Work done up to the billed quantity and quality is satisfactory
33	Supply of 175mm dia M.S Collors Each (P.No.iii. It No-86,PRED 12-13 SR)	Work done up to the billed quantity and quality is satisfactory
34	Supply and delivery at site brand New texmo/ innoval/ Lubi/ Sabar / Atalanta/ Calamal/ make suitable for vertical installation in 150mm dia bore well comprising of single stage or multistage CF pump close coupled by measns of stainless steel coupling to suitable HP suitable speed totally enclosed and filled with pure drinking water (Wet type) squirrel cage submersible induction motor suitable for opertation of 3PH., 50 Hz, 380/440 volts AC supply fitted with required aqccessories such as suction, casing suction strainers sand guard Non return value etc. complete . The pump and motor shall form an integral unit with all the required fittings . 15HP/11KW 25 Stage (PAGE NO XLII It No.41, PWD SR 2018-19)	Work done up to the billed quantity and quality is satisfactory
35	Providing, laying and jointing GI pipes confirming to IS specification of approved makes with fittings such as collars bends elbows tees nipples plugs with cuts threads using white lead and threads for the joints wherever necessary as per direction including all lead and lift etc., coplete'A' grade(excluding cost of fittings) 50mm dia GI pipe(PWD SR 2018-19, Page No.92 It No.13.6)	Work done up to the billed quantity and quality is satisfactory

AE-1

A.E.E

TEJUS CONSULTANTS
No. 58, 3rd main, 6th Cross, 1st Stage KHB Colony, Basaveshwaranagar, Bangalore - 560079, O : +91 80 23287532, tejusconsultants@gmail.com

36	Supply of 50mm MS collars	Work done up to the billed quantity and quality is satisfactory
37	Supplying and drawing 3 core PVC sheathed submersible pump cable manufactured with electrolytic grade copper with flexible copper with low resistance conductor confirming to table 3 class 5 of IS:8130-1984 and virgin grade PVC insulation and powder coating extruded PVC sheathed suitable for working voltage upto 1100Volts 4 sqmm of 56 strands 0.3mm dia.(P No.536 It No.30 (c) GROUP-A. BWSSB 13-14 SR)	Work done up to the billed quantity and quality is satisfactory
38	Supplying and delivery at site brand new star / Essen/ Lotus/Sun-shines/Adarsh/ GK Controls best indigenous make combined energy meter - cum- control panel board unit of size 600x450 x200 mm minimum mechanically strong vermin and water proof. The unit shall have two detachable doors suitable for operation on 3 ph, 50Hz, 380/440 volts, A.C supply with spring loaded latch, locking device with a key ribs should be provided inside the door, canopy apron and louvers ventilators shall be provided. the combined energy meter cum- control panel board unit suitable for operation. The panel board shall be fabricated on single unit in the above components for suitable pumpset above 6.5HP to 15 HP Star Delta Starter (MR)	Work done up to the billed quantity and quality is satisfactory
39	Fabricating supplying and mounting MS box made out … SWG suitable for floor / wall mounting, fully weather proof with provision for better heat dissipation, provided with hinged front cover, equipped with tamper proof locking arrangements, with suitable size clamps with necessary cable entry pipe with gland and box should be finished with 2 coats of red oxide primer paint and finally finished with approved colour enameled metal paint etc., complete box of 21600 sq cm (Pg No.530, It No.39 b, BWSSB SR 13-14)	Work done up to the billed quantity and quality is satisfactory
40	Providing and fixing of clamps set and borewell cap to the pump(MR)	Work done up to the billed quantity and quality is satisfactory
41	Supply and delivery at site brand New best make non return valve of size 50mm as per IS:778/84 with latest amendments with ISI mark (50mm Gate wheel valve. PWD SR 2018-19, Pg No. XXV, Sl No.647)	Work done up to the billed quantity and quality is satisfactory
42	Supply and delivery at site brand New best make non return valve of size 50mm as per IS:778/84 with latest amendments with ISI mark 50mm Gate valve for distributer pipeline 50mm dia.. PWD SR 2018-19, Pg No. XXVI, Sl No.661)	Work done up to the billed quantity and quality is satisfactory
43	Providing and fixing of 50mm GI shortbend to motor (PWD SR-2018-19,P.No XXXIX, GI pipe fittins-ISI Standards Table)	Work done up to the billed quantity and quality is satisfactory
44	Providing and fixing of 50mm GI union to the motor (PWD SR-2018-19,P.No XXXIX, GI pipe fittins-ISI Standards Table)	Work done up to the billed quantity and quality is satisfactory
45	Supplying and fixing of 50mm GI Elbow PWD SR 18-19 XXXIX	Work done up to the billed quantity and quality is satisfactory

A.E.E

46	Labour charges for erection of new/repaired submersible pumpset along with GI pipes (32/50mm) cable (new submersible pumpset if required will be supplied by the department free of cost and releasedpump set should be handled over to department) including transportation(each length =6.00m)(P.No.564, It No.3 BWSSB SR 13-14)	Work done up to the billed quantity and quality is satisfactory
47	Erection of combined panel board meer board with all necessary materials and labour including providing CC 1:3:6 foundation bed etc., complete basement outdoor type (MR)	Work done up to the billed quantity and quality is satisfactory
48	Supplying and fixing miniature circuit breakers/isolators on existing MCB distribution boards using necessary fixing materials and wiring complete as required, 40 to 63 Amps DP (P No. 526 / I No.13D (a) BWSSB SR 2013-14)	Work done up to the billed quantity and quality is satisfactory
49	Supplying and laying of L.T.U.G cable hsving aluminium conductor PVC insulated shethed galvanized steel wire/steel tape armoured cable with PVC outer sheathing 1. KV class 4 core 16 sqmm cable (confirming to IS 1554) (P.No.553, It No.10 (d), BWSSB SR 13-14)	Work done up to the billed quantity and quality is satisfactory
50	Digging of trench of 0.6m deep x 0.50 mtr wide refilling the trench to the required ground level and consolidating etc., complete sutting road surfaces (P No. 554 / I. No.12 (b) BWSSB SR 13-14)	Work done up to the billed quantity and quality is satisfactory
51	Supplying and fixing of class-A GI pipe on pole/wall/drain crossing with necessary clamping arrangements for UG cable of 1.1 KV class 40mm (P. No.555 / I No -15(b) BWSSB SR 13-14)	Work done up to the billed quantity and quality is satisfactory
52	Supplying, fixing, wiring, earth electrode for grounding conduits, I.C cutouts and other equipments on the meter board using 40 mm dia 2.90 mm thick GI pipe 2.5 m long buried in a pit. The pit should be filled with equal propotion of solt and charocoal 150 mm alround the pipe to complete depth. The connection from the pipe to the conduit etc., is to be established through GI wire of size, as per ISI specification 7.3.3 IS 732 using 12 mm dia bolts, nuts, washers and check nuts, etc., the pipe shall have 16 throught holes of 122 mm dia, (P No.552, I No. 7 BWSSB SR 13-14)	Work done up to the billed quantity and quality is satisfactory
53	Supplying and fixing L.T. cast Iron pot heads suitable for 1.1 KV class 16sqmm UG cable filled with necessary bitumen/insulating compound complete with terminals, clamps, bolts, nuts and washers etc., (P No.555, I No.16(b) BWSSB SR 13-14)	Work done up to the billed quantity and quality is satisfactory
54	Supplying shunt capacitors confirming to IS 2834, 3 phase 400/440 volts grade for power factor improvement of roating machinery capacitor in KVAR rating No's(MR)	Work done up to the billed quantity and quality is satisfactory
55	Providing and fixing gun metal wheel valve confirming to IS specifications of approved make as per direction including all lead and lift etc., Complete 50mm dia (P No.94, I No. 13.79.6 BWSSB SR 18-19)	Work done up to the billed quantity and quality is satisfactory
56	Supplying and fixing polished wood board made of not less than 15mm thick plank on both sides with planks made out of not more than 2 pieces and fixing the same to the wall using tapered inverted wooden plugs screws etc. size 20"x20"x2.5",(P No.521, I No. 2 BWSSB SR 13-14)	Work done up to the billed quantity and quality is satisfactory
57	Erection of pumping machineries PRE SR 12-13 P.No.51/10.3.20	Work done up to the billed quantity and quality is satisfactory

A.E.E

TEJUS CONSULTANTS
No. 58, 3rd main, 6th Cross, 1st Stage KHB Colony, Basaveshwaranagar, Bangalore - 560079, O: +91 80 23287532, tejusconsultants@gmail.com

60	Earth work excavation for foundation of buildings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches, 1.5m and above in width, in ordinary soil, exceeding 1.5m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with all lead upto 50m after breaking of clods complete as per specifications No.KBS 2.1(b)/ 2.3.5 (page No.5, It No.2.4 PW,P& IWTD SR 2018-19)	TEJUS CONSULTANTS Work done up to the billed quantity and quality is satisfactory
61	KSRRB 13-9: Providing and fixing to wall ceiling and floor high density polyethylene pipes 6.00kgf/sqm.cm working pressure of outside diameter raising mains and exposed distribution pipes with special flange,compression types fitting, wall clips,making good the wall ,ceiling and floor, including cost of materials,labour charges HOM and testing complete as per Specifications.Specification No.KBS 13.2.15.2/13.9, KSRB 13-9.4: do-63mm dia(P No.94, It No.13.73.2)	Work done up to the billed quantity and quality is satisfactory
62	KSRRB M 400- Wet Mix Macadam KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub- base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406	Work done up to the billed quantity and quality is satisfactory
63	Filling available excavated earth around pipelines cable in layers not exceeding 20 cms in depth, compacting each deposited layer by ramming after watering with a lead upto 50m and lift upto 1.5m including cost of all labour complete as per specifications Specification .(Page No.6, Item No. 2.10)PW, P& IWTD SR 2018-19)	Work done up to the billed quantity and quality is satisfactory

A.E.E

TEJUS CONSULTANTS